

Abstract of the Disclosure

A sputter transport device comprises a sealed chamber, a negatively-biased target cathode holder disposed in the chamber, and a substrate holder
5 disposed in the chamber and spaced at a distance from the target cathode. A target cathode is bonded to the target cathode holder. A magnetron assembly is disposed in the chamber proximate to the target cathode. A negatively-biased, non-thermionic electron/plasma injector assembly is disposed between the target cathode and the substrate holder. The injector assembly fluidly communicates
10 with a gas source and includes a plurality of hollow cathodes. Each hollow cathode includes an orifice communicating with the chamber. The device can be used to produce thin-films and ultra-thick materials in polycrystalline, single-crystal and epitaxial forms, and thus to produce articles and devices that are useful as metallic or insulating coatings, and as bulk semiconductor and opto-
15 electronic materials.